

REMARKS

Initially, Applicants would like to thank the Examiner for providing an indication of the allowability of claims 7-9 and 14-16, if rewritten into independent form to include all of the limitations of the base claim and any intervening claims.

Applicants would also like to thank the Examiner for acknowledging consideration of the documents listed on PTO-1449 forms submitted with the Information Disclosure Statements filed on August 4, 2005, May 23, 2005, January 5, 2005 and June 18, 2004. However, Applicants note that the Examiner did not affix his initials next to citations to English language Abstracts on PTO-1449 forms submitted with the Information Disclosure Statements filed on May 23, 2005 and January 5, 2005. Accordingly, with the next Official Action, Applicants respectfully request that the Examiner affix his initials next to citations to English language Abstracts on PTO-1449 forms submitted with the Information Disclosure Statements filed on May 23, 2005 and January 5, 2005, and return to Applicants a copy of the initialed PTO-1449 to confirm consideration of these documents.

In the outstanding Official Action, claims 1-2, 6, 10, 13, 17 and 20 were rejected under 35 U.S.C. §102(b) over KIM. Claims 3-4, 11-12 and 18-19 were rejected under 35 U.S.C. §103(a) over KIM, in view of the Examiner's taking of Official Notice. Claim 5 was rejected under 35 U.S.C. §103(a) over KIM, in view of NISHIHARA et al. Claims 7-9 and 14-16 were objected-to as being dependent upon a rejected base claim, but were otherwise indicated to be allowable if

rewritten into independent form to include all of the limitations of base and intervening claims.

Upon entry of the present amendment, claims 1-7, 9-14 and 16-20 will have been amended. Claim 21 will have been added for consideration by the Examiner. In view of the herein-contained amendments and remarks, Applicants respectfully request reconsideration and withdrawal of each of the outstanding rejections and objections.

Claim 1 recites, *interalia*, "a heater in an accumulator for heating the refrigerant during a room heating mode to delay deposition of frost on the outdoor heat exchanger". In contrast, KIM fails to disclose or suggest the above-noted feature recited in claim 1.

KIM discloses, at col. 5, lines 1-7, that a defrosting operation and a cooling operation are performed in the reverse of the heating cycle disclosed at col 4, lines 47-67. As the defrosting operation and cooling operation are each accomplished in the same "reverse" cycle, the defrosting occurs as a result of the cooling, and both are accomplished simultaneously. In other words, in contrast to the above-noted feature recited in claim 1, a defrosting operation does not occur during a "room heating mode" in KIM. Rather, defrosting occurs during a cooling cycle (i.e., the "reverse" of the heating cycle described at col. 4, lines 47-67).

KIM further describes, at col. 5, lines 20-25, "a heater... for... heating the refrigerant before being infused into the compressor 1 is installed within the

accumulator 5". The "heater" as described throughout KIM is provided to "maintain a predetermined degree of superheat (SHs)" of the refrigerant, as calculated from a temperature and pressure of the refrigerant infused into the compressor. For example, KIM discloses, at col. 6, lines 1-10 and at col. 10, line 63 to col. 11, line 9, driving both the heater and the compressor 1 at a maximum when an outdoor temperature falls below a threshold. The threshold temperature is the outdoor temperature at a point where the heating capacity and heating load correspond during an operation of the compressor at maximum speed.

However, the heater in KIM is not related to heating refrigerant "during a room heating mode to delay deposition of frost on the outdoor heat exchanger" as recited in claim 1. For example, as described at col. 5, lines 1-7 in KIM, the defrosting operation is performed in the cooling cycle, which is the reverse of the heating cycle disclosed at col. 4, lines 47-67. KIM explicitly describes that "the heater is driven... during the de-frosting (i.e., the cooling cycle)" (emphasis added) at col. 6, lines 52-55. KIM further describes that "the cooling operation is executed during the de-frosting operation" at col. 11, lines 64-66. Accordingly, in KIM, a heater in the accumulator is not provided "for heating the refrigerant during a room heating mode to delay deposition of frost on the outdoor heat exchanger" as recited in claim 1.

As described above, KIM is directed merely to performing the cooling operation as the defrosting operation in the middle of the heating operation, driving the heater in the accumulator to maintain superheat, and driving the

compressor and the heater at the maximum when an outdoor temperature is below a threshold to increase the heating capacity. However, KIM fails to disclose the use of the heater in the accumulator for defrosting during the room heating mode.

Claims 6 and 13 recite, *inter alia*, "heating low temperature refrigerant with a heater in an accumulator during a room heating mode to delay growth of frost on an outdoor heat exchanger". Accordingly, for reasons similar to those noted above with respect to claim 1, KIM fails to disclose or suggest these features in combinations recited in claims 6 and 13.

Claim 13 additionally recites "varying a heat generating rate of the heater with a capacity of a plurality of indoor units". KIM also fails to disclose or suggest this feature of claim 13. Rather, as explained above, KIM merely discloses driving the compressor and the heater at a maximum when an outdoor temperature is below a threshold to increase the heating capacity. According to KIM, a heat generating rate of the heater is increased merely to increase the heating capacity, but the heat generating rate is not varied with a capacity of the indoor units.

Accordingly, Applicants respectfully submit that independent claims 1, 6 and 13 are allowable at least for the various reasons set forth above. Applicants further submit that dependent claims 2-5, 7-12 and 14-21 are allowable at least for depending, directly or indirectly, from an allowable independent claim, as well as for additional reasons related to their own recitations.

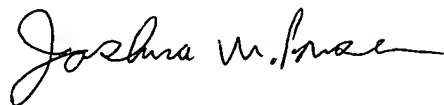
SUMMARY AND CONCLUSION

Applicants have made a sincere effort to place the present application in condition for allowance and believe that they have now done so. Applicants have amended the claims, added a new claim, and discussed how the combination of features recited in the claims are not disclosed or suggested by the documents applied in the Official Action. Accordingly, Applicants have provided a clear evidentiary basis for the patentability of each claim in the present application and respectfully requests an indication to such effect in due course.

Any amendments to the claims which have been made by this amendment, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should the Examiner have any questions or comments regarding this Response, or the present application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
Jong Han PARK et al.



Joshua M. Povsner
Reg. #42,086

Bruce H. Bernstein
Reg. No. 29,027

May 22, 2006
GREENBLUM & BERNSTEIN, P.L.C.
1950 Roland Clarke Place
Reston, VA 20191
(703) 716-1191